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(54) **INSTEP WEIGHTING TRAINING ACCESSORY**

A63B 43/002; A63B 69/002; A63B 2225/62; A63B 2243/0025; A63B 2243/0066; A63B 2243/007

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See application file for complete search history.

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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**A43B 5/00** (2006.01)

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(52) **U.S. Cl.**

CPC ..... **A63B 21/065** (2013.01); **A43B 3/00** (2013.01); **A43B 5/00** (2013.01); **A43B 5/18** (2013.01); **A63B 21/4015** (2015.10); **A63B 23/03541** (2013.01); **A63B 23/04** (2013.01); **A43B 5/02** (2013.01); **A63B 41/00** (2013.01);

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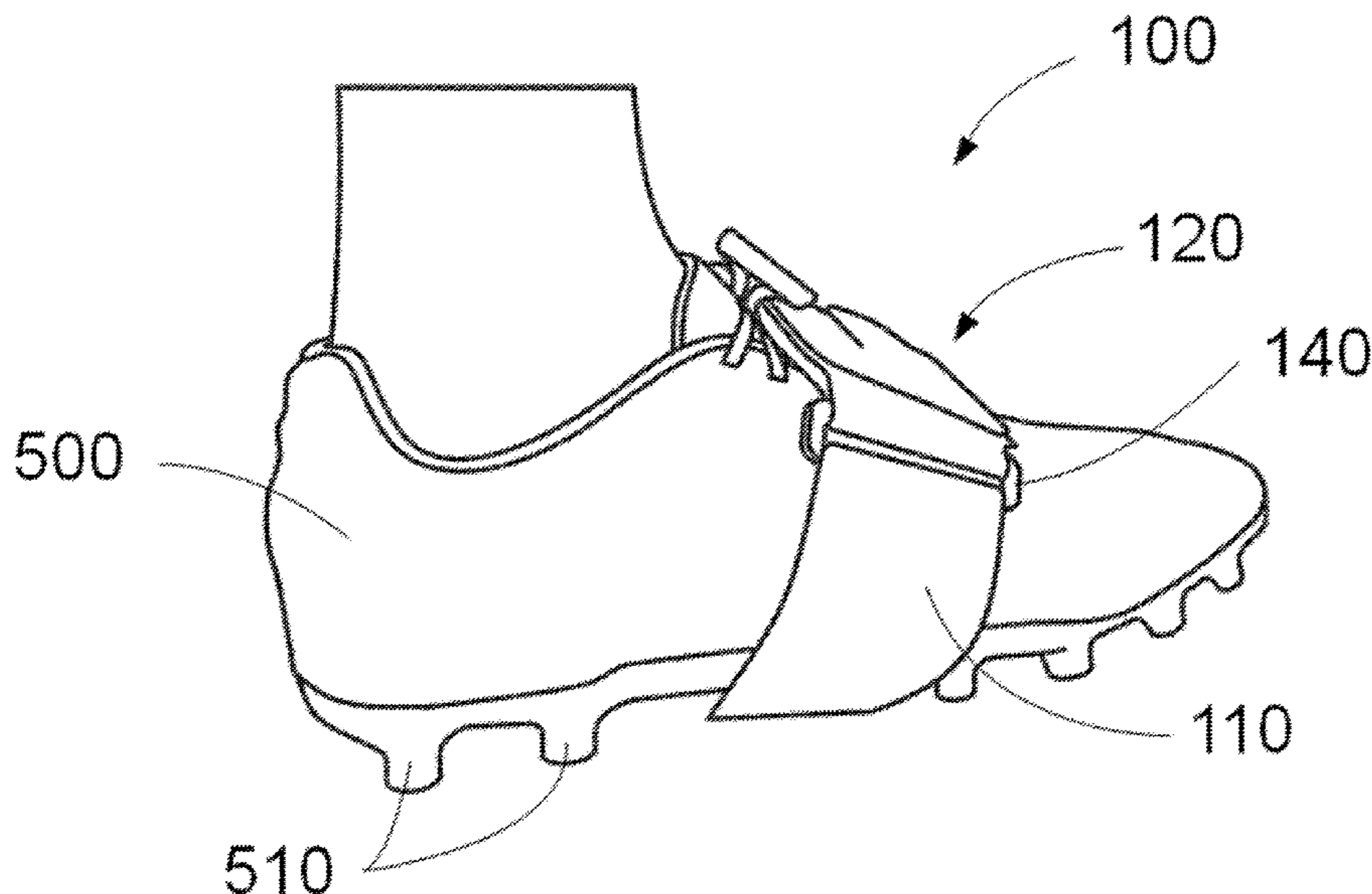
(57) **ABSTRACT**

An instep weighting training accessory to be releasably fastened around the instep of a shoe having studs or cleats on its sole is provided. The accessory includes a strip, a weight and a layer of padding material. The strip includes an inner layer intended to be in contact the shoe and a sheath to be arranged on the instep of the shoe. The weight is enclosed inside the sheath and the padding material is located between the weight and the inner layer of the strip. In an alternative, an instep weighting training set having a plurality of training accessories is provided.

**18 Claims, 8 Drawing Sheets**

(58) **Field of Classification Search**

CPC .... A43B 3/00; A43B 5/00; A43B 5/02; A43B 5/18; A63B 21/065; A63B 21/4015; A63B 23/03541; A63B 23/04; A63B 41/00;





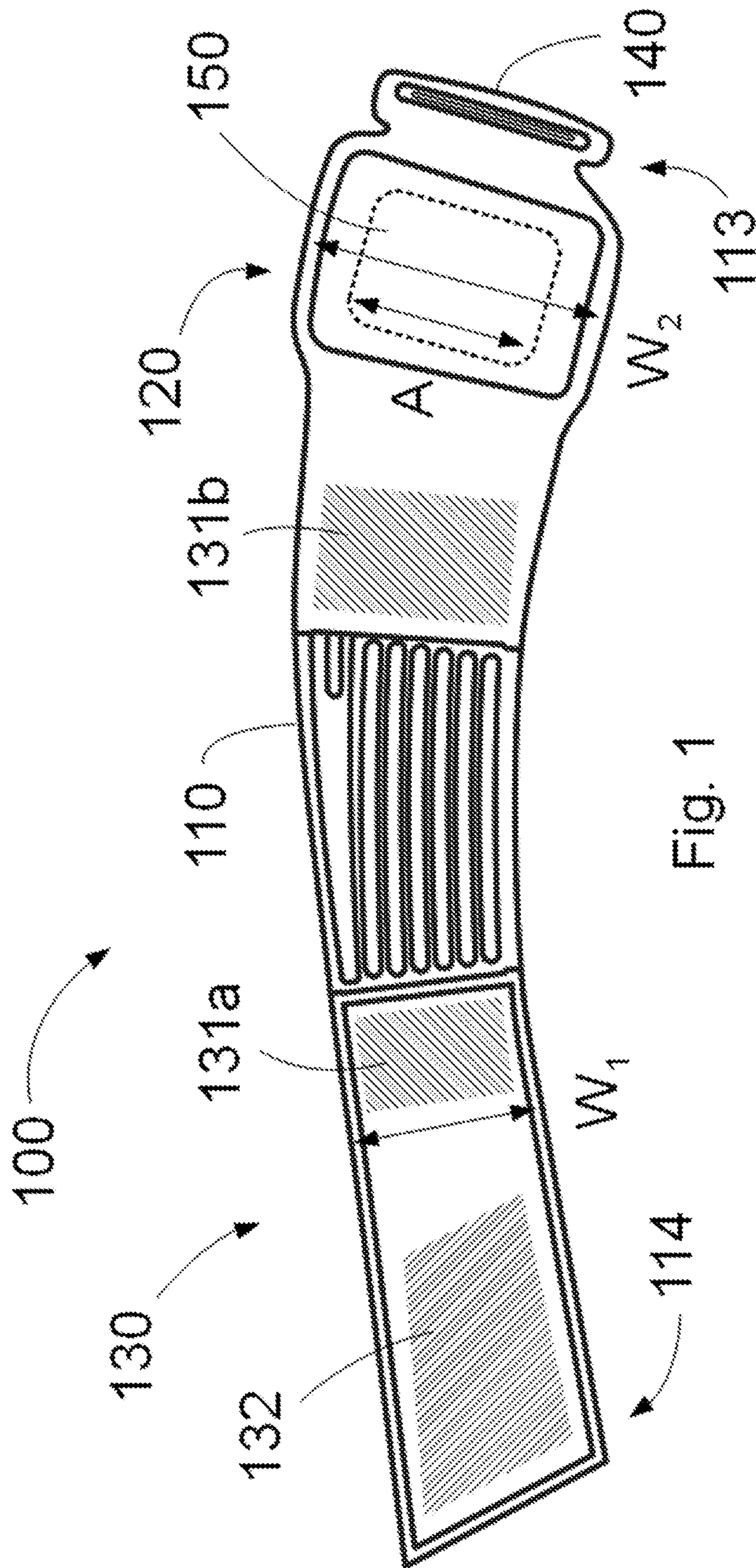


Fig. 1

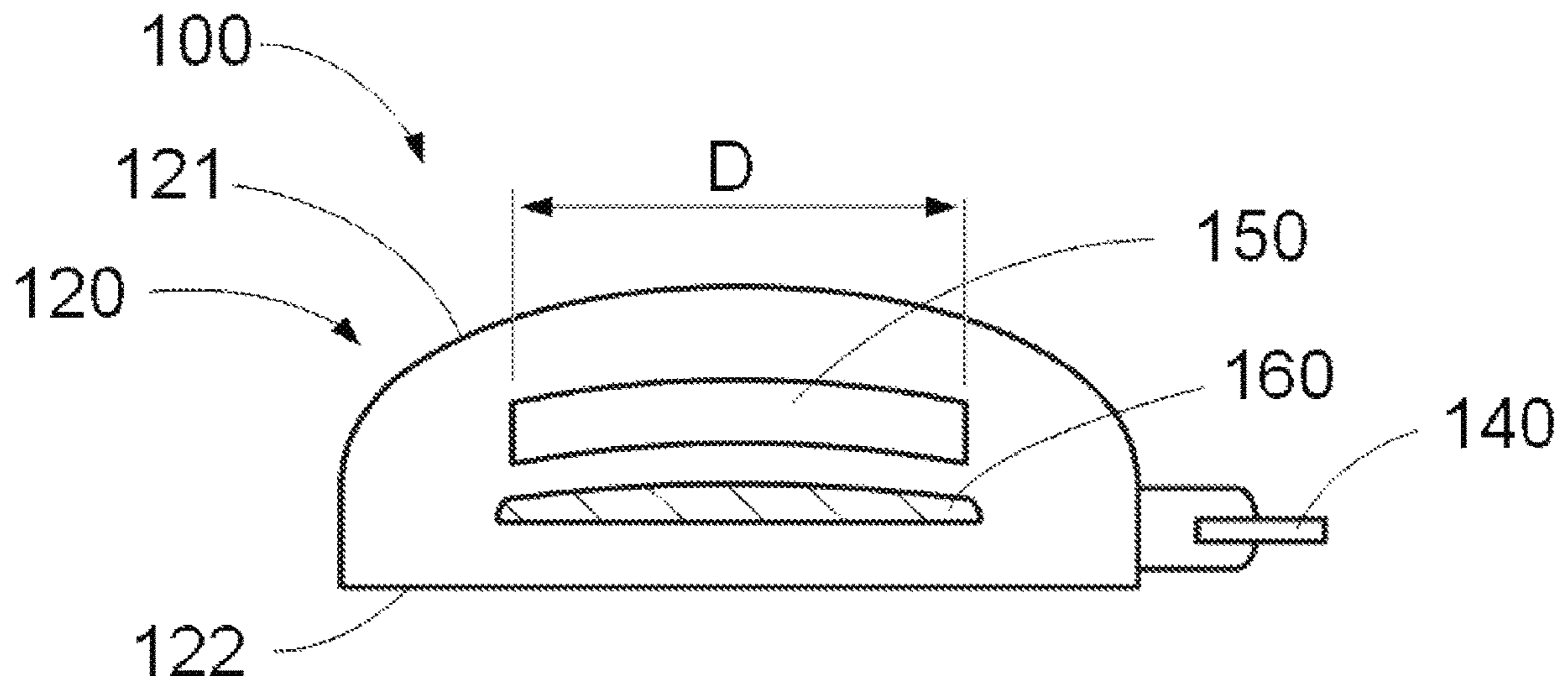


Fig. 2

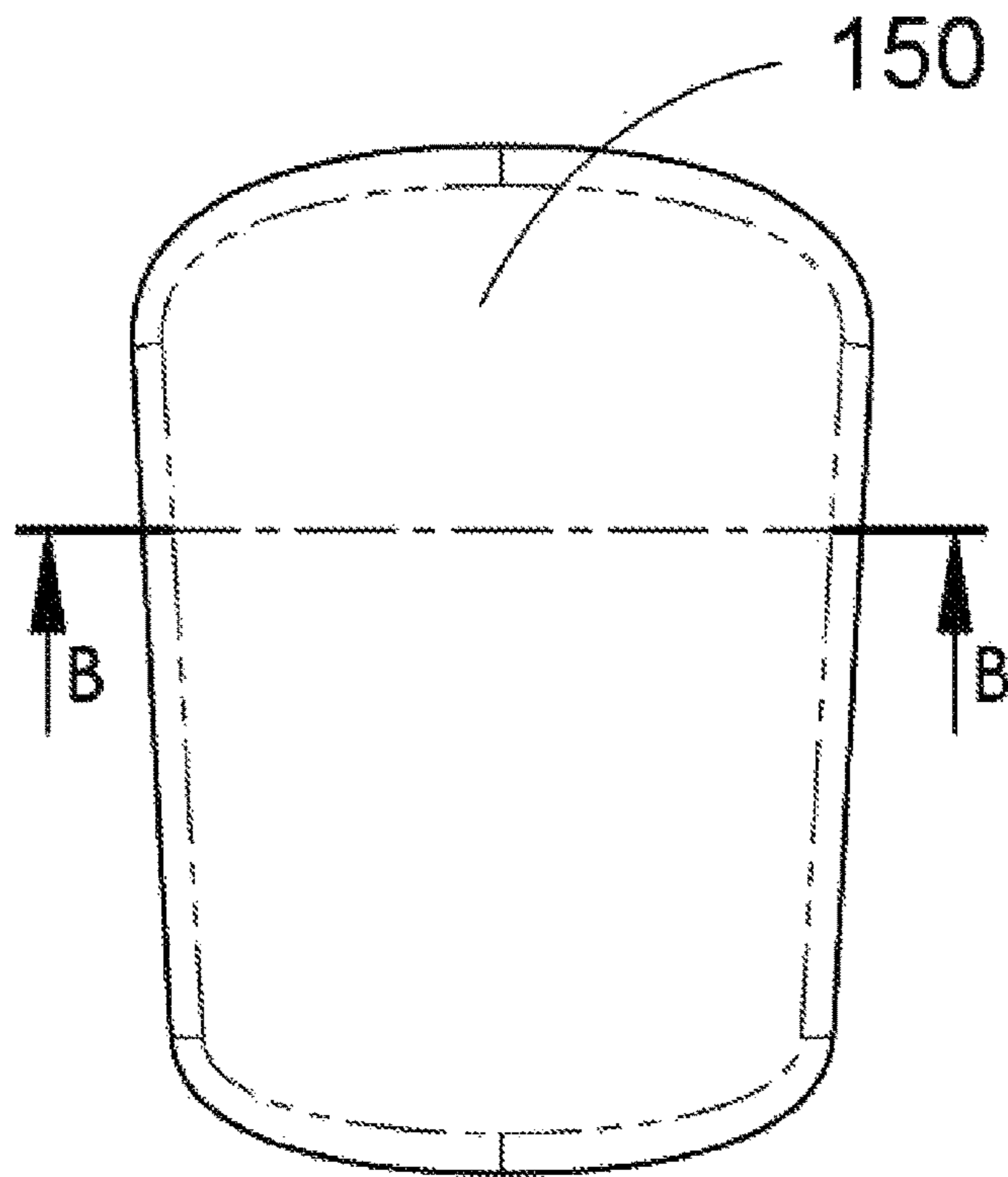


Fig. 3a

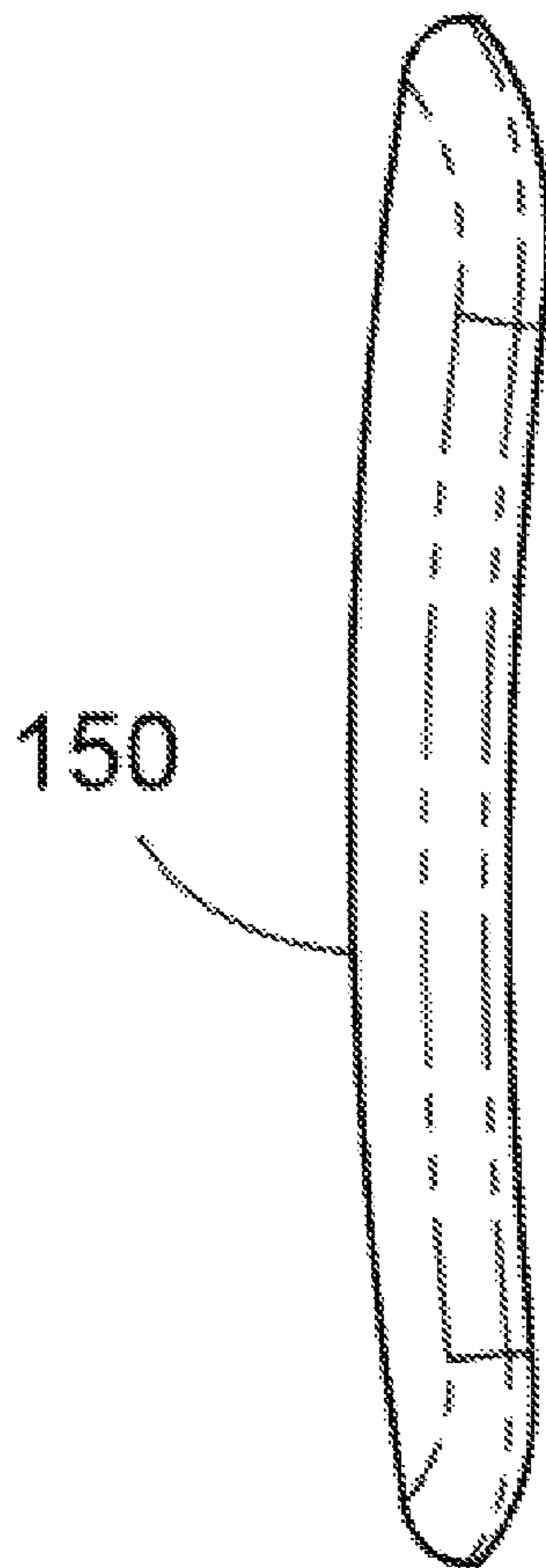


Fig. 3b

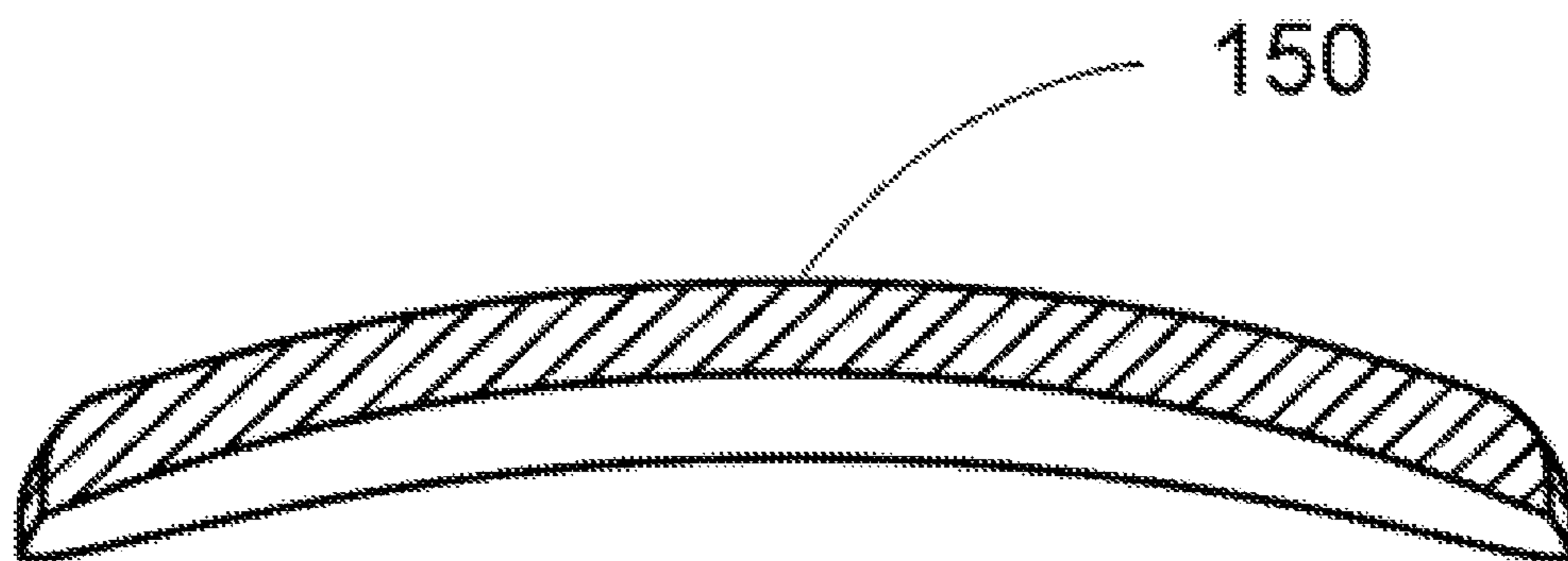


Fig. 3c

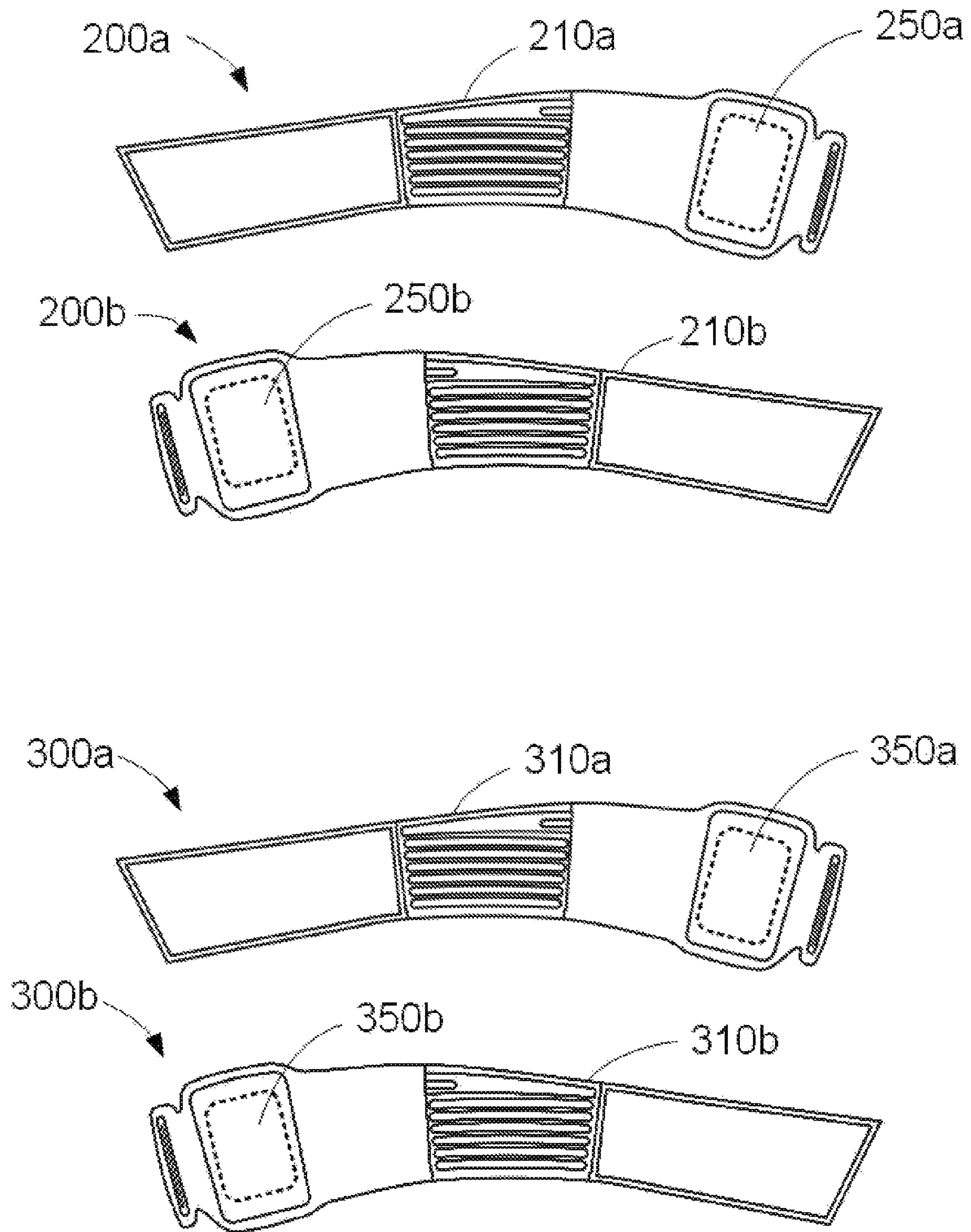


Fig. 4

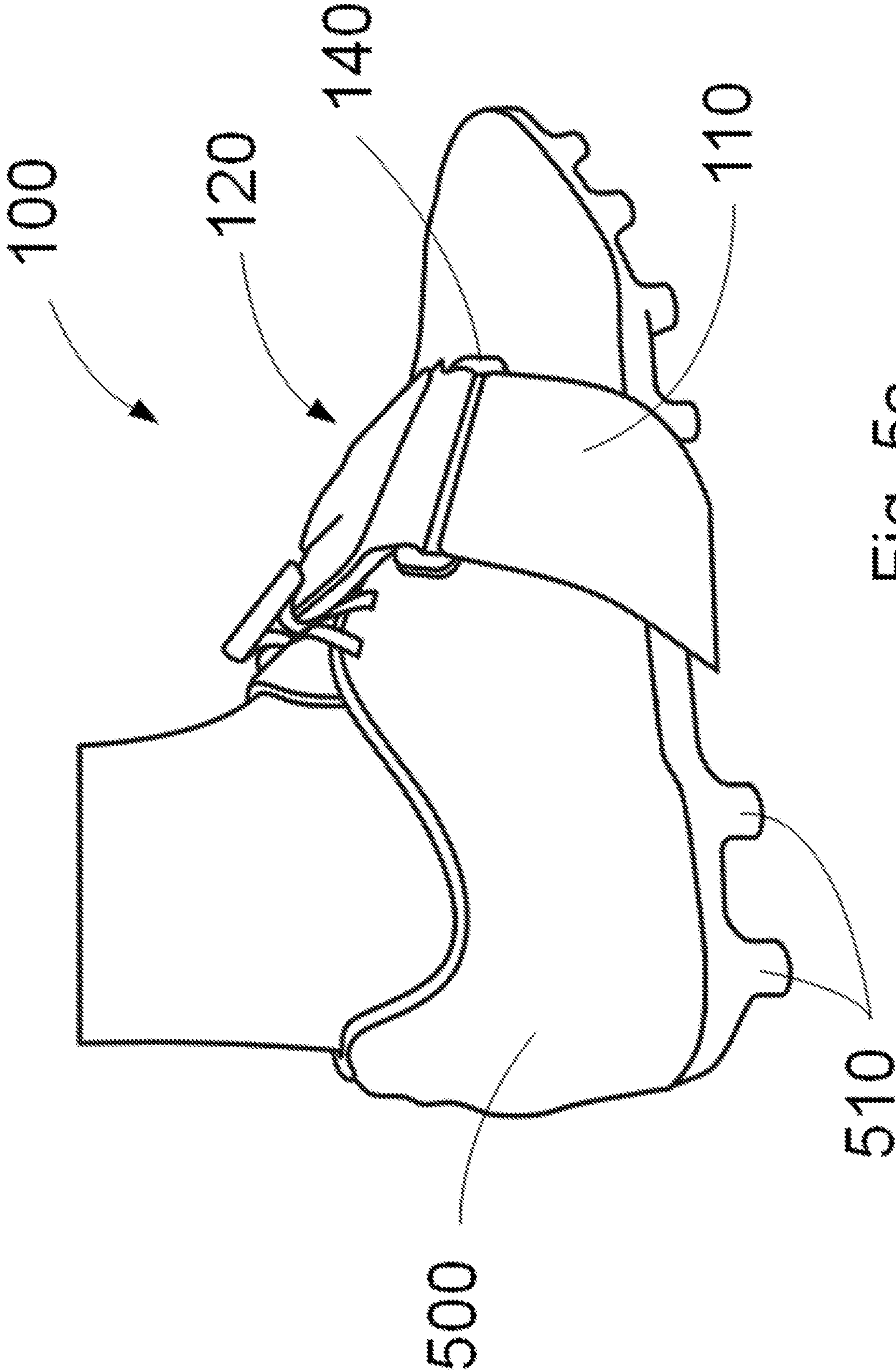


Fig. 5a

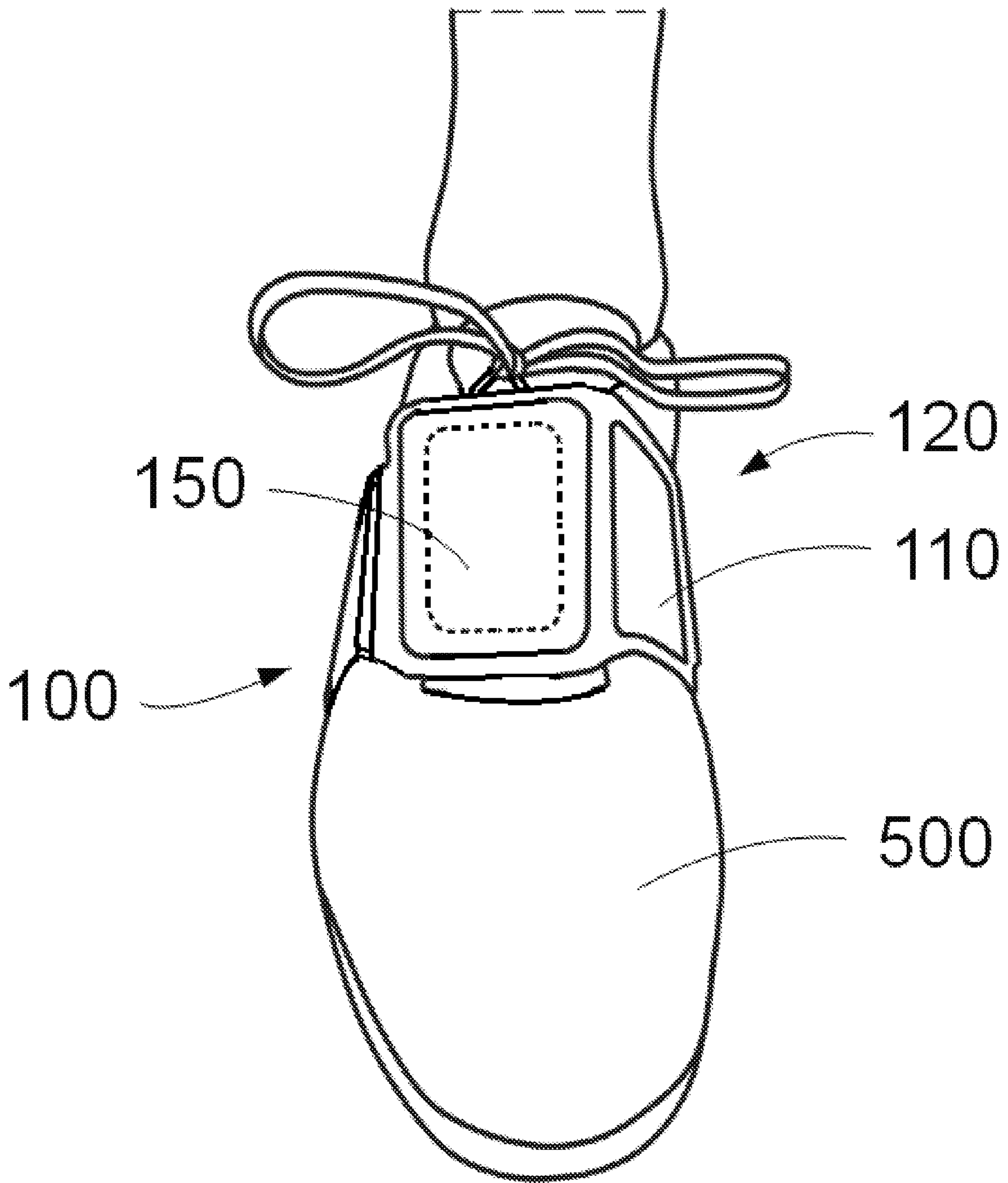


Fig. 5b



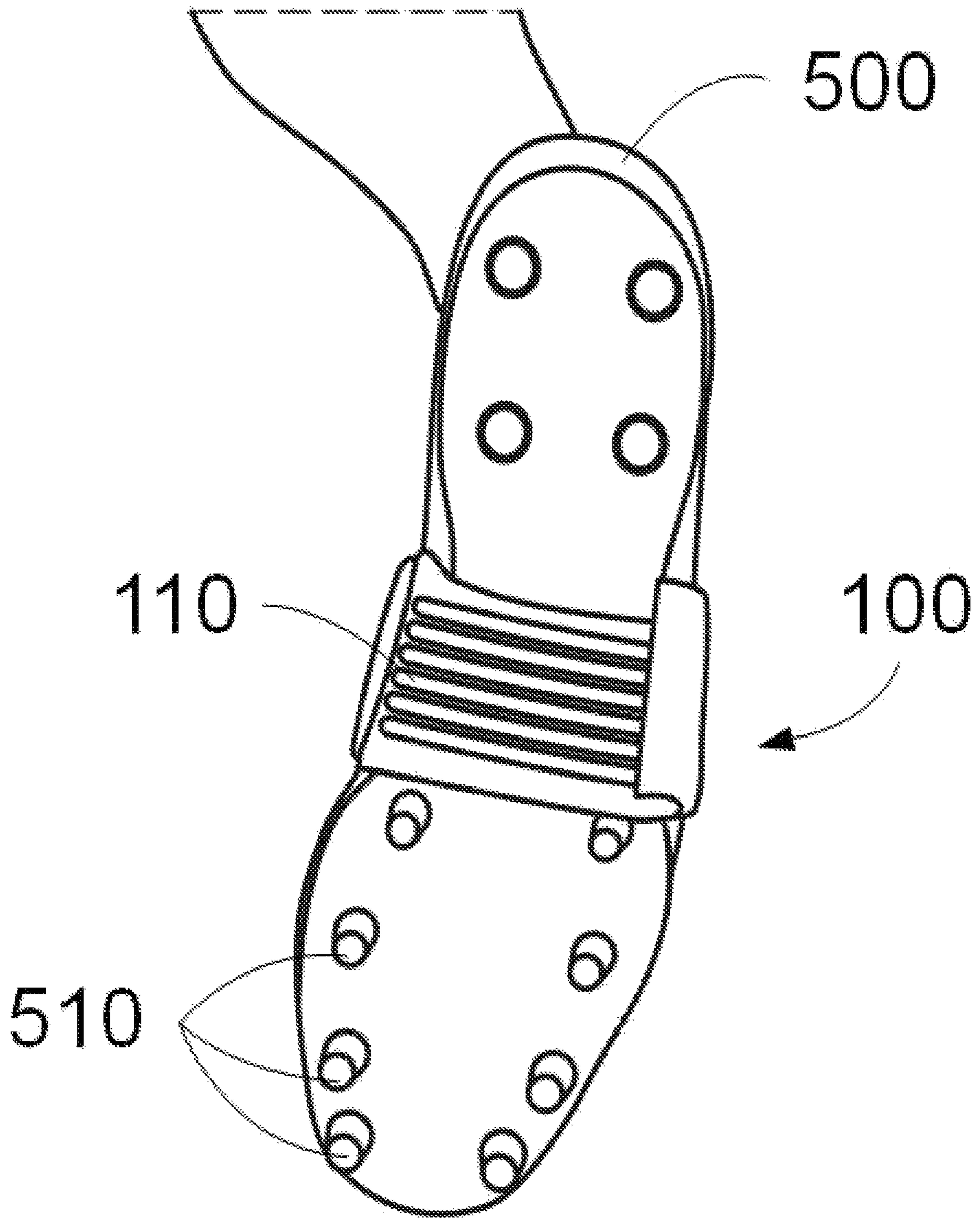


Fig. 5c

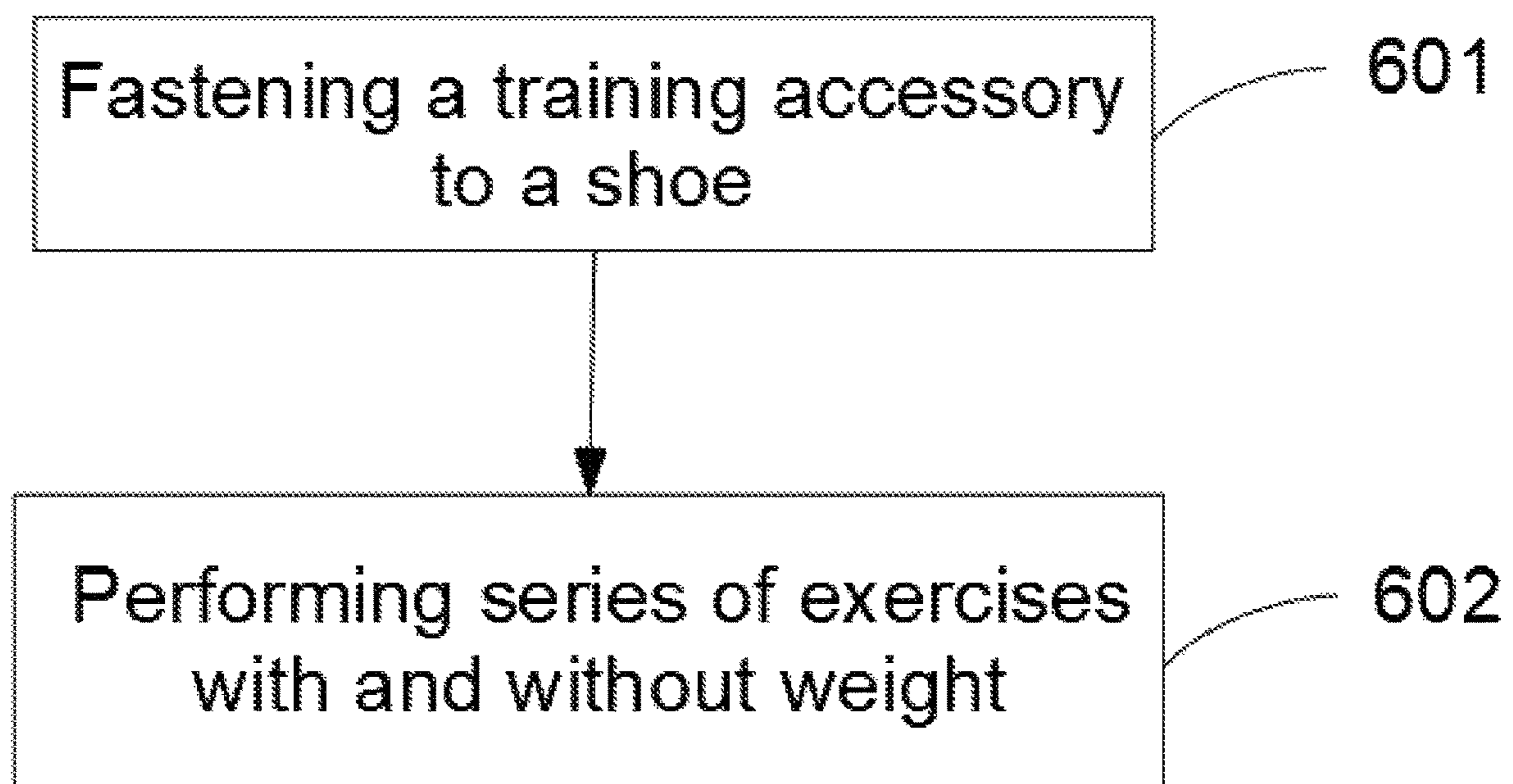


FIG. 6

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## INSTEP WEIGHTING TRAINING ACCESSORY

The subject matter hereof relates to training accessories, more specifically to training accessories to be releasably fastened around the instep of a shoe having studs or cleats in such a way that a weight may be specifically located over the instep.

### BACKGROUND

The use of weighting devices during training sessions of sportspeople e.g. runners, football players, etc. is known. Some of the used devices are designed to be placed on the instep.

However, the shoes used in some sports e.g. football or athletics, include special features such as studs, cleats or spikes on their sole, very thin shoe laces and/or very thin shoe tongues to which known weighting devices may not be properly fixed or adapted.

Moreover, in some sports e.g. football, wherein a ball is shot, the instep of the shoe may be used as ball-kicking area and known instep weighting devices e.g. due to the shape, size, etc., may interfere in the shot quality, may cause discomfort when playing the ball or pain when kicking the ball or may even become unintentionally detached or broken as a consequence of the impact.

Removing known instep weighting devices for playing the ball, and/or for performing training sessions that alternate work series with weight and without weight to avoid muscle overcharge, may require repeatedly tying and untying the shoelaces.

In conclusion, it would be desirable to provide an instep-weighting device configured to be securely yet releasably fastened on shoes having studs, cleats or spikes and/or which does not hinder playing or shooting a ball.

### SUMMARY

In a first aspect, an instep weighting training accessory to be releasably fastened around the instep of a shoe having studs or cleats on its sole is provided. The accessory may include a strip, a weight and a layer of padding material. The strip may further include an inner layer intended to be in contact the shoe and a sheath to be arranged on the instep of the shoe. The weight may then be enclosed inside the sheath and the padding material located between the weight and the inner layer of the strip.

Using a weighting training accessory enables improvement of performance by increasing sportsman/sportswoman strength and technique. By having the weight snugly enclosed inside a sheath, such that it cannot move therein, uncomfortable movements of the weight i.e. as consequence of the training, are avoided and moreover, the weight cannot become unintentionally detached as a consequence of an impact e.g. when the ball is shot.

A training session of a ball sport, for example football, may be realized with instep weights, by using the training accessory as disclosed herein. Contrary to prior instep weighting devices, which cannot be used for sports in which a ball is kicked, the accessories disclosed herein do not cause discomfort to the user when the ball impacts on the insole, by virtue of the padding. A suitable shape of the weight may also prevent any effect of the training accessory on the trajectory of the ball.

By arranging the training accessory around the instep of a shoe (with the weight placed on the instep itself) any

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discomfort may be avoided, as part of the strip will be located in correspondence with the arch zone of the shoe and therefore it would not hinder or alter the movements of the user, e.g. when running or walking. Furthermore, a cleated shoe may include studs or cleats on the whole sole except in the arch zone. Therefore the strip may be placed in a recessed area of the sole, which enhances the grip. In fact, the studs or cleats of the shoe block the strip movement if the strip is slightly moved as consequence of the training movements, e.g. when the ball is shot.

In an example, the training accessory may include a fastening system for releasably fastening the training accessory around the instep of a shoe. By being able to fasten/unfasten the training accessory, the user may alternate training sessions with and without weight to avoid muscle overcharge. The change in the working series may be done in a very quick and simple way by fitting and removing the training devices on the shoes, without requiring for example tying and untying the shoelaces repeatedly.

In an example, a width of the strip may vary along the length of the strip to be better adapted to each user foot characteristics.

In a second aspect, an instep weighting training set including a plurality of training accessories is provided.

### BRIEF DESCRIPTION OF THE DRAWINGS

Non-limiting examples of the present disclosure will be described in the following, with reference to the appended drawings, in which:

FIG. 1 schematically illustrates a top view of a training accessory according to an example;

FIG. 2 illustrates in a very schematic way the structure of a portion of a training accessory according to an example, in cross-sectional view;

FIGS. 3a-3c schematically illustrate different views of a weight according to an example;

FIG. 4 schematically illustrates a training set according to an example;

FIGS. 5a-5c schematically illustrate different views of a training accessory arranged on the instep of a shoe; and

FIG. 6 illustrates a flow chart of a training method according to an example.

### DETAILED DESCRIPTION

FIGS. 1 and 2 show a top view and a cross section of an example of an instep weighting training accessory **100**, i.e. a training accessory or device intended to place a weight on the instep of the foot during training (from now on "training accessory"). The training accessory **100** may include a strip **110** to be releasably fastened around the instep of a shoe, e.g. a shoe having studs, cleats or spikes on its sole. The strip **110** may be made of a flexible and/or elastic material, for example of polyvinyl chloride (PVC), to facilitate its fastening around the instep of the shoe. Note, for example, the training accessory may be manufactured in different sizes e.g., in some cases, in three different sizes such as small, medium and large.

The strip **110** may be made of a plurality of layers, at least in part of its length. In an example, the strip **110** may at least include an inner layer to be in contact with the instep of the shoe and an outer layer.

The strip **110** may be a continuous band which may include a first end **113** and a second end **114**. The first end **113** may include a sheath **120** (described further below) while the second end **114** may be cut at an angle i.e. thereby

forming a protruding portion which may be used to pull and detach the strip **110**. In an example, the second end may include a tab to facilitate unfastening the strip **110**.

In some examples, the width  $W$  of the strip **110** may vary along its length e.g. to be better adapted to a shoe including studs, cleats or spikes on its sole. In an example, the strip portion  $W_1$  to be placed below the arch of the shoe may be narrower than the portion  $W_2$  to be placed on the instep of a shoe. By varying the strip width a more comfortable fitting may be obtained. In an example, an end of the strip e.g. the end without the sheath, may be narrower than the other end. In an example, the width  $W$  may be gradually decreased from one end of the strip to the other.

The training accessory **100** of FIG. 1 may further include sheath **120** in which a weight **150** may be housed. The sheath **120** may be placed at or near the widest end of the strip **110**, e.g. on or near the first end **113** of the example of FIG. 1, and it may be formed by the overlap of layers, e.g. it may be formed by the inner and outer layers of the strip **110**. In another example, the sheath **120** may be an independent housing which may be fixed to the strip **110** e.g. by an adhesive, by sewing it, or by any other suitable method.

The training accessory **100** may also include a fastening system **130** with at least two cooperating parts **131**, **132**, e.g. a hook-and-loop system, a magnetic system, etc. The fastening system **130** may enable a tight and secure fastening of the training accessory **100** to a shoe, and it may be releasable.

In some examples, the fastening element **132** may be fixed in a single fastening area, such as fastening portion **131a** in FIG. 1, along which the fastening element **132** may be attached in several adjacent positions. This allows the strip **110** to be suitably tightened on shoes of e.g. different sizes, shapes and features. The fastening portion **131a** may be provided on the part of the strip **110** intended to remain, in use, on one side of the shoe, such that the fastening of the strip is made mainly on the side and not on the sole of the shoe.

The fastening system **130** may also provide more than one fastening area, for example by providing two separate fastening portions **131a**, **131b** to selectively cooperate with a fastening element **132**, as in the example of FIG. 1. The fastening element **132** may be fixed in two possible discrete fastening positions due to the two independent fastening portions **131a**, **131b**. The fastening portion **131a** may define a first fastening position which may be used to fasten the training accessory **100** to the instep of a shoe. The fastening portion **131b** may define a second fastening position in which the strip **110** may form a narrower loop than the first position. Such other fastening position may be used to fasten the training accessory **100** to a user wrist. Each fastening portion may be large enough to allow some adjustment when fastening the strip **110**, as mentioned above.

In some examples, the strip **110** may also include a single continuous fastening area (not shown) along which the fastening element **132** may be fixed in any desired position. A continuous fastening portion may extend between a point at or near the end without a sheath and a point at or near the sheath.

FIG. 1 further depicts a guiding element **140** such as a buckle, to strengthen, guide and facilitate the fastening of the strip **110** around the instep. The guiding element **140** may be placed at or near the strip end having the sheath **120**. Such guiding element **140** may be made of a substantially rigid material e.g. plastic.

To fasten the training accessory **100** to the instep of a shoe e.g. a shoe including studs, cleats or spikes on its sole, firstly,

the strip portion including the sheath **120** may be placed substantially on the instep of the shoe, on top of the shoe. Secondly, the opposite end of the strip may be passed through the guiding element **140**, pulled backwards to be tightened, and fixed at the desired position, by attaching the fastening element **132** on the corresponding fastening portion, usually fastening portion **131a** for a shoe.

On the contrary, to release the training accessory **100**, the fastening element **132** may be firstly detached from the fastening portion **131a**, **131b** e.g. by pulling the tab and/or the protruding portion. The strip **110** may be in part or completely removed from the guiding element and finally the training accessory may be removed from the shoe.

FIG. 2 shows a cross-section of the sheath **120** of FIG. 1 formed by the overlap of an outer layer **121** and an inner layer **122**. The sheath **120** may be formed with a curvature in the outer region. In an example, the sheath may also be provided with a slight curvature (not shown) in the inner region, i.e. to be adapted to the natural curvature of the instep. FIG. 2 is very schematic, intended solely for the purpose of showing the relative position of the different elements in the sheath **120**, and is not drawn to scale.

The sheath **120** may house a weight **150** which may be snugly fitted within the sheath, i.e. to avoid uncomfortable movements of the weight while training. The weight **150** may be made of a dense metal e.g. lead, such that it may be thin and avoid obstructing user movements and/or the quality of the ball shots. The shape of the weight **150** may be the same regardless of the weight load e.g. 50 g, 100 g, 150 g, 200 g, etc. However, the thickness of a weight may vary depending on the weight load, i.e. heavier weights may be slightly thicker than lighter ones as a consequence of having more material. The thickness may also be the same for different weight loads, for example by using a different material or alloy for each.

Similarly to the sheath **120**, the weight **150** may also include a slight inward curvature, at least on the side to be in contact with the instep of the shoe (see FIGS. 3b and 3c) i.e. to be more comfortably adapted on the instep of the shoe. In an example, the whole weight may have a shape including an outwardly protruding curvature (see FIGS. 3b and 3c). Such a curvature may be along the longitudinal and/or the transversal axis. In an example the weight **150** may have substantially trapezoidal shape with rounded vertices (see FIG. 3a). In an example, the average width  $D$  (see FIG. 2) of the weight **150** may be of about 48 mm and its length  $A$  (see FIG. 1) may be around 64 mm. In an example, the edges of the weight **150** may be substantially rounded and/or bevelled. In an example, the surface area of the weight **150** may be around 60 cm<sup>2</sup>.

The sheath **120** may further include, as also visible in FIG. 2, a layer of padding material **160** which may be placed between the weight **150** and the inner layer **122** of the sheath to absorb any impact caused when the user is exercising. The padding material may be e.g. polyurethane (PU) foam, ethylene-vinyl acetate (EVA), poly(ethylene-vinyl acetate) (PEVA) or any other suitable material. The thickness of the layer of padding material **160** is sufficient to avoid any discomfort to the user by the pressure of the weight on the instep, and especially to dampen the impact when the user shoots the ball. The padding material **160** may be attached to the inner layer **122** of the sheath, for example by gluing or sewing. In some implementations it may be integral with the sheath **120**, for example if the inner layer **122** is formed with a thickened section suitable for absorbing the impacts of the ball, while the rest of the strip **110** has a thinner

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section. The padding material **160** may also be snugly contained inside the sheath **120**, together with the weight **150**.

FIG. **3a** shows a top view of an example of the weight **150** of FIGS. **1** and **2**. FIG. **3b** shows a lateral view of the weight **150** (i.e. seen from one side of FIG. **3a**) and FIG. **3c** depicts a cross-section of the weight **150** taken along the line B-B of FIG. **3a**.

Sets of training accessories of different weights may be foreseen. For example, FIG. **4** depicts a training set which may include pairs of training accessories, such as **200a**, **200b** and/or **300a**, **300b**. Each pair of training accessories may include weights, such as **250a**, **250b** and **350a**, **350b**, having a specific load, which differs from one pair to another. For example, a set of four pairs of accessories may be provided, with weights of e.g. 50 grams, 100 grams, 150 grams and 200 grams, respectively. For example, training accessories **200a** and **200b** of FIG. **4** may have weights **250a**, **250b** e.g. of 50 grams each, while training accessories **300a**, **300b** of FIG. **4** may have weights **350a**, **350b** e.g. of 200 grams each. In an example, the strips **210a**, **210b**, **310a**, **310b** of the training accessories forming a pair may be orientated in opposite directions i.e. to facilitate fastening each training accessory to one of the shoes of the user.

In use, a pair of training accessories may be simultaneously used, i.e. each training accessory forming a pair may be fastened to one of the shoes of the user, and both training accessories may include a weight of the same load. During a training session different training accessories or pairs including different load weights may be interchanged and/or alternated, e.g. the weight load may be gradually increased during a training session or from a training session to another.

In an exemplary training session, the user may firstly fasten a pair of training accessories having the same weight load to the instep of each shoe. The user may then perform alternated series with and without weight, and/or with different weights, e.g. by fastening and unfastening the training accessories to/from the instep of the shoe. The session may end for example with a series without weight. The series with the training accessories i.e. the series with weight, may be performed during a predetermined period of time which may depend e.g. on the total training time, on the kind of sport routine and/or user characteristics such as body weight, physical condition, etc.

A training method with the instep weighting training accessories disclosed may include the steps of: attaching instep weighting training accessories to the shoes in such a way that the weight thereof is placed on the instep; performing a number of exercises, including exercises that include shooting a ball; and removing the instep weighting training accessories from the shoes.

In an example, particularly since the training accessory may include a padding layer, the training sessions may include exercises using a ball e.g. a soccer ball, a football ball, a rugby ball, etc. The training session(s) including a ball may be focused on improving the technique and/or ability e.g. dribbling, ball carrying/driving, rondo drills, etc., and/or focused on ball kicking, shooting, etc.

FIG. **5a** shows a lateral view of a training accessory **100** fastened around a shoe **500** having studs or cleats **510**. The sheath **120** may be placed as shown on the instep of the shoe **500** and by adjusting the strip **110** a secure fastening of the training accessory may be obtained. FIG. **5b** shows a top view of the training accessory **100** wherein the sheath **120** including a weight **150** is placed as shown on the instep of the shoe **500**. FIG. **5c** depicts the sole of the shoe **500** having

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the strip **110** fastened around the shoe **500** in the arch of the shoe i.e. the zone without cleats or spikes.

FIG. **6** shows a training method in which a training accessory according to any of the disclosed examples may be used. Firstly, in block **601**, the user may fasten a training accessory according to any of the disclosed examples to one of his/her shoes. Then, in block **602**, the user may perform an exercise with the accessory **100**, which in some examples may include alternated series of exercises with and without weight during a predetermined period of time.

Although only a number of examples have been disclosed herein, other alternatives, modifications, uses and/or equivalents thereof are possible. Furthermore, all possible combinations of the described examples are also covered. Thus, the scope of the present disclosure should not be limited by particular examples, but should be determined only by a fair reading of the claims that follow. If reference signs related to drawings are placed in parentheses in a claim, they are solely for attempting to increase the intelligibility of the claim, and shall not be construed as limiting the scope of the claim.

The invention claimed is:

**1.** An instep weight training accessory to be releasably fastened around the instep of a shoe having studs or cleats on its sole, the instep of the shoe being defined by the top, sides and sole of the shoe in the arch zone of the shoe, the accessory comprising:

a singular strip configured to be releasably fastened in a singular loop around the instep of a shoe having studs or cleats on the sole of the shoe, and the strip being configured to be located in correspondence with the arch zone of the shoe and in a recessed area of the sole of the shoe:

the strip having sufficient length to be wrapped around the instep, including the sides and the arch of a shoe with studs or cleats;

the strip having sufficient length for fastening in a singular loop around the instep of a shoe:

the strip comprising:

an inner layer configured to be in contact with the shoe,

a sheath to be arranged on the instep of the shoe, and a fastening system for releasably fastening the training accessory around the instep of a shoe;

a weight shaped for contacting a ball, and disposed in a shape of a rigid plate, curved in a transverse direction of the shoe and arranged to be disposed only on the instep,

the weight being snugly enclosed inside the sheath, and a discrete layer of padding material not integrally formed with or as part of the strip but disposed between the weight and the inner layer of the strip.

**2.** The instep weight training accessory according to claim **1**, the discrete layer of padding material being a discrete different material from the strip.

**3.** The instep weight training accessory according to claim **1**, the fastening system comprising one or more of:

a guiding element;

a buckle; and,

a hook-and-loop system.

**4.** The instep weight training accessory according to claim **1**, the fastening system comprising a fastening element and a fastening portion.

**5.** The instep weight training accessory according to claim **4**, the fastening system comprising at least two separated fastening portions.

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6. The instep weight training accessory according to claim 4, the fastening portion being a continuous fastening portion.

7. The instep weight training accessory according to claim 1, a width of the strip varying along a length of the strip.

8. The instep weight training accessory according to claim 1, the weight being made of one or more of: a metal, a dense metal, and lead.

9. The instep weight training accessory according to claim 8, the weight being one or more of:  
a singular rigid plate; and,  
concave in shape.

10. The instep weight training accessory according to claim 1, the padding material being foam.

11. An instep weight training set comprising a plurality of training accessories according to claim 1.

12. A training method comprising:  
fastening a training accessory according to claim 1 to a shoe of a user; and  
performing an exercise.

13. The training method according to claim 12, further comprising performing an alternated series of exercises with and without weight, or with different weights, during pre-determined periods of time.

14. The training method according to claim 12, further comprising using a pair of training accessories to be releasably fastened around the instep of a shoe having studs or cleats on its sole, each of the accessories comprising:

a strip comprising an inner layer intended to be in contact with the shoe, and a sheath connected to the inner layer to be arranged on the instep of the shoe,

a weight enclosed inside the sheath, and

a layer of padding material disposed between the weight and the inner layer of the strip.

15. The training method according to claim 14, the weight of both training accessories being identical.

16. The training method according to claim 14, the weight of the training accessories varying from a series with weight to another series with weight.

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17. The training method according to claim 12, the method further comprising exercises using a ball selected from a soccer ball, a football or a rugby ball.

18. A shoe, comprising

a sole and an instep, the instep of the shoe being defined by the top, sides and sole of the shoe in the arch zone of the shoe, and

comprising studs or cleats on the sole except the arch zone of the shoe,

the shoe being provided with an instep weighting training accessory configured to be releasably fastened around the instep, the instep weighting training accessory comprising:

a singular strip configured to be releasably fastened in a singular loop around the instep of the shoe, and the strip being configured to be located in correspondence with the arch zone of the shoe and in a recessed area of the sole;

the strip having sufficient length to be wrapped around the instep, including the sides and the arch of a shoe with studs or cleats;

the strip having sufficient length for fastening in a singular loop around the instep of a shoe:

the strip comprising

an inner layer intended to be in contact with the shoe, a sheath to be arranged on the instep of the shoe, the sheath being attached to

the strip, and

a fastening system for releasably fastening the training accessory around the instep of a shoe;

a weight shaped for contacting a ball, and disposed in the shape of a rigid plate arranged to be disposed only on the instep, the weight being snugly enclosed inside the sheath, and

a discrete layer of padding material not integrally formed with or as part of the strip but disposed between the weight and the inner layer of the strip.

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